THE CHALLENGES AND BENEFITS OF KNOWLEDGE MANAGEMENT SYSTEM TO LIBRARIAN COMPETENCIES AND SKILLS: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

Introduction. Knowledge Management is relatively new to libraries, hence it is important to find its impact and implications for libraries and LIS professionals. The objective of this paper is to summarize the existing researches concerning the challenges and benefits as implications of knowledge management system in libraries.
Research Method. Through a systematic literature review method, this paper wants to research knowledge management system related to librarian competencies and skills from challenges and benefits point of view.
Results and Conclusion. The results showed that the librarian should prepare to face for the challenges of KM to get benefits by utilized the KMS so that they can increase their competencies and skills in the future.

ABSTRAK

Pendahuluan. Manajemen Pengetahuan relatif baru bagi perpustakaan, oleh karena itu penting untuk menemukan dampak dan implikasinya bagi perpustakaan dan profesional LIS. Tujuan dari makalah ini adalah untuk meringkas penelitian yang ada mengenai tantangan dan manfaat sebagai implikasi dari sistem manajemen pengetahuan di perpustakaan.
Metode Penelitian. Melalui metode tinjauan literatur secara sistematis, makalah ini ingin meneliti sistem manajemen pengetahuan terkait dengan kompetensi dan keterampilan pustakawan dari sudut pandang tantangan dan manfaat.
Hasil dan Kesimpulan. Hasil penelitian menunjukkan bahwa pustakawan harus bersiap menghadapi tantangan KM untuk mendapatkan manfaat dengan memanfaatkan KMS sehingga mereka dapat meningkatkan kompetensi dan keterampilan mereka di masa depan.

Keywords: Knowledge Management; Competencies; Librarian; Benefits; Challenges

1. INTRODUCTION

The nature of library and information services has transformed because of the advent of the internet and related technology developments that make increased stocks and flows of information. According to Nazim and Mukherjee (2016), knowledge management (KM) has emerged as a further significant influence of the library and information services nature. That is why in response to the growth of interest from Library Information System (LIS) community in KM, International Federation of Library Association (IFLA) gave formal status to KM and issued IFLA's Standard for "Principles and Best Practice" related to KM (Ifla, 2016).

1.1. Knowledge and Knowledge Management

Though it is difficult to grasp and define, knowledge can be described as information that facilitates action and it always relates to the intellectual capital of an organization. While another said that knowledge is being thought of as a valuable commodity that is embedded in products. According to these definitions, knowledge can be summarized as a valuable commodity such as information that can result in actions.

Knowledge management is a process that is required to generate, capture, codify and transfer knowledge throughout the organization to achieve a competitive advantage. Dalkir (2011), stated

that KM is a surprising mix of strategies, tools, and techniques. Narrowly defined as an information technology system that dispenses organizational know-how.

Edwards (2010) divided KMS definition into two different views, the narrow and broad view. The narrow view, identifies a KMS solely with information technology. While the broad view sees a KMS as comprising not just the technology, but also people and the processes.

1.2. Challenges, Benefits, Competencies, and Skills for Librarian

In the advancement of technology, the future of libraries and librarianship will be changed. People have become to believe that everyone can search everything through internet. This is known as threat or challenge for librarian to more advance in facing it. Through KMS, librarian can take some advantages to have benefits (Nazim & Mukherjee, 2016). There are several benefits of KMS for an organization. But it is important to know what benefits are for the librarian and what challenges could be faced.

It is also important to know whether skills of librarian are relevant for the KMS or other competencies needed to perform in knowledge management, so KMS can be effectively increase librarian knowledge in answering the future challenges.

2.   METHODOLOGY

The objective of this paper is to summarize, evaluate and to interpret all research found which is relevant to the research questions. As the research question to answer is: "What are the challenges and benefits of Knowledge Management/Knowledge Management System for Librarian competencies and skills upgrade?"

This paper follows a Systematic Literature Review (SLR) guidelines from Kitchenham, Tranfield, and Okoli. With the basis of those literature theory, there are several phases of activities. This SLR phases consist of planning, conducting, and reporting the review (Kitchenham et al., 2009; Okoli & Schabram, 2011; Tranfield, Denyer, & Smart, 2003). In detail shown in figure 1.
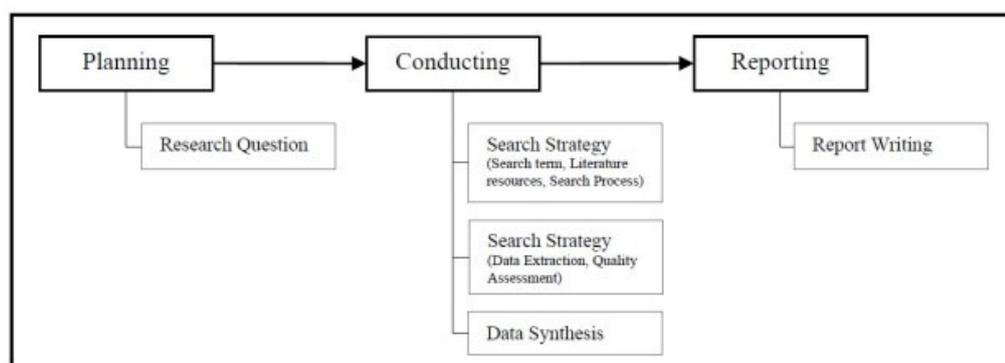

Figure 1. SLR Phase Detail

In the planning phase, we formulate the research question that we need to clear out the problem.

The second phase is conducting the research. In this phase, we divide the steps into three. Firstly, we formulate the search strategy that consists of the search term, literature resources, and search process. In this step, we choose primary research. Primary research is the collection of researches that have been done that will be used as a source of our research. These researches are the focus of systematic literature review. The process of choosing among researches are done after scanning through the main libraries online database via campus computer network.

The Second step, we follow-up search strategy to process the data extraction and quality assessment. After we get the articles that fit with the searches, the next step to do is to extract and monitor the data. The extraction will get the most out of each research paper and journal that is relevant to the research question or able to give the answer to the questions. The data will then be monitored to check if it can answer the questions. The last step in the planning phase, we make data synthesis. In this step, we try to summarize the data in form of synthesis. The results of the research will be collected and merged into one summary. After that, it is checked to ensure that the content can satisfy the research questions. It can then be used to conclude the research.

Table 1. Search Term Combination

No	Search Term
1	"Knowledge Management System" AND Librarian
2	"Knowledge Management System" AND "Benefit for Librarian"
3	KMS AND Librarian
4	KMS Benefit for Librarian

In the reporting phase, we report the results of the research. The reporting will be done in a specific section and will be finished by a conclusion to what has been done in the review.

Term queries to search in the database were used four kinds of combination. First, we used "Knowledge Management System" AND Librarian. And then "Knowledge Management System" AND "Benefit for Librarian" and so on. The search terms were used for this paper shown in Table 1.

There are three databases that we used for this research: Science Direct, ACM Digital Library, and Scopus. We used these three databases through campus network in Salemba. The detail of the database that we used for the reference in this paper shown in Table 2. Because of the limited source that we find in this research related to KMS and librarian, so we included the source from journals, proceedings, and books.

Table 2. Applied Search Database and Criteria

No	Database and Criteria	Total
1	**Science Direct** In: All fields Year range: 2013-Present	602
2	**ACM Digital Library** In: All publication Published year: 2013-Present	164
3	**Scopus** In: All fields Year range: 2013-Present	8

3. RESULT AND ANALYSIS

From the total search results obtained a total of 774 publications from the online database and selected 22 publications that have been published in journals and proceeding. There are little literatures on KMS related to the librarian as knowledge workers make some difficulties in finding references. The sources that shown KMS benefits to librarian only from "Science Direct", "ACM Digital Library", and "Scopus".

After selecting the sources, there are some literatures that fit with this paper research term. The detail is shown in Table 3. The literature sources included in this SLR are journals and conferences. There are 18 sources taken from the journal and a total of 4 sources taken from the proceeding (conference). For the literary source of the book (gray) is not used as the reference.

The year of publication of selected sources is based on the year from 2013 to 2018 (March). Summarized according published year, five publications of 2013, three publications of 2014, six publications of 2015, there are four publications of 2016, two publications of 2017, and two publications of 2018.

Some of the result findings we will describe in the next page are the most important result related to knowledge management/knowledge management system in libraries.

Table 3. Selected Articles

ID	Article	Published in
P01	Daland (2016)	Journal
P02	Flatley (2013)	Journal
P03	Hansson (2013)	Journal
P04	Chen (2016)	Proceeding
P05	Gullbekk (2015)	Proceeding
P06	Koloniari (2017)	Journal
P07	Chidambaranathan (2015)	Journal
P08	Husain (2013)	Journal
P09	Kumari (2016)	Journal
P10	Garanayak (2015)	Proceeding
P11	Sarungu (2018)	Proceeding
P12	Ali (2015)	Journal
P13	Nazim (2013)	Journal
P14	Patil (2013)	Journal
P15	Poonkothai (2016)	Journal
P16	Aghoghovwia (2014)	Journal
P17	Williams (2015)	Journal
P18	Bello (2018)	Journal
P19	Benjamin (2018)	Journal
P20	Aharony (2014)	Journal
P21	MacMillan (2014)	Journal
P22	Huang (2014)	Journal

Bello (2018) said that the role of libraries as knowledge managers emphasizes the need to constantly update or acquire new skills and knowledge to remain relevant to today's library environment. In another part, Bello (2018) told us that libraries depend on the capabilities of its staff to serve the needs more efficiently and effectively. While Poonkhotai (2016) highlighted the knowledge management as the key because of librarian also a knowledge worker that must extend their expertise beyond collection management to knowledge acquisition and management. They must be willing to move outside the walls of the traditional library and word assiduously with technologists, and others.

Table 4. Summary of All Paper About Challenges, Benefits, Competencies, and Skills

Paper	Daland (2016)	Flatley (2013)	Hansson (2013)	Chen (2016)	Gullbekk (2015)	Koloniari (2017)	Chidambaranathan	Husain (2013)	Kumari (2016)	Garanayak (2015)	Sarungu (2018)	Ali (2015)	Nazim (2013)	Patil (2013)	Poonkhotai (2016)	Aghoghovwia	Williams (2015)	Bello (2018)	Benjamin (2018)	Aharony (2014)	MacMillan (2014)	Huang (2014)
Challenges	√	√	√	√	NA	√	√	NA	√	NA	NA	NA	√	NA	NA	NA	√	√	√	√	√	NA
Benefits	√	√	√	NA	NA	√	√	NA	√	NA	NA	√	√	NA	NA	NA	√	NA	√	√	√	√
Competencies	√	√	√	NA	√	√	NA	√	NA	√	√	√	√	NA	√	√	√	NA	NA	NA	NA	NA

Skills	√	√	√	√	√	√	NA	√	NA	√	√	√	NA	√	√	√	NA	√	√	NA	√	√

Note: NA = Not Available

Aghoghovwia (2014) stated that for any library to succeed in implementing knowledge management, will require a strong leadership and vision which can influence the organizations in positive ways. For the detail of all paper is shown in Table 4.

3.1. Limitation of Research

There are some limitation in this research. First, in this research not use quality factor as Kitchenham method. This is because the article that we search with exact topic of the research were very limited. As it said in the beginning that was difficult to find paper with KM/KMS related to librarian or librarianship. Second limitation is about library category that was not categorized for this research. Another limitation that the paper with complete discussion (challenges, benefits, competencies, skills) is not really much. So we used paper which discuss partially themes also.

4. CONCLUSION

After reviewing all papers and journals, this research has come to conclusion. To provide an overview and get a better understanding towards the knowledge management/knowledge management system that has been applied in the libraries, we have summarized the results.

The result and discussion of knowledge management system in libraries emphasized the wide open challenge for the librarian to have some skills and competencies to face the challenges and get the benefits from the knowledge management/knowledge management system. The librarian should prepare for the challenges to get benefits as summarized in Table 5.

Table 5. Results of KM/KMS Benefits and Challenges for Librarian/Libraries

The Benefits	The Challenges
add value to the library service and operation	Misinterpretation of the concept of KMS
improve library performance & future prospect	Ignorance of KMS benefits
effectively manage tacit knowledge	Lack of skills related to KM
improve the efficiency and effectiveness of the service	Reluctance in acquiring managerial skills and competencies
reshape libraries into a learning organization	
reduce duplication of work	

Table 5 gives us information about what the benefits that librarian/libraries can get from KM/KMS. Here, we summarize six benefits where two of them are related to services and performances of the librarian/libraries. Aside of benefits, there are challenges that librarian/libraries must deal with, such as ignorance of KMS benefits. If we see at a glance, there is a relation between challenges and benefits.

Table 6. Librarian's Competencies and Skills That Expected to be Obtained from KM/KMS

Competencies	Skills
Must enhance the visibility within the organization	Strengthen partnership with other units in the organization
Should provide innovative services	Transform from "service-oriented" to "value-oriented"
Should be more qualified to handle KMS	human resource management
Need to broaden understanding of holistic approach of KM	change management
Must acquire the communication	teamwork
project management	presentation and leadership

| | mentoring | |

Some benefits of KM/KMS for Librarian are that KM/KMS can give more value to the library service and can improve their performance in the future prospect. Besides that KM/KMS for librarian also can be used to manage tacit knowledge. While for challenges, librarian must face misinterpretation concept of KMS and the ignorance of KMS benefits. Because of the ignorance, then the librarian will suffer from lack of skills related to KM. What was described the ignorance of KMS benefits, it means that librarians still ignore their capabilities development because of misinterpretation of the KMS concept, lack of skills related to KM, and librarians are reluctant in acquiring skills and competencies.

Another challenge that also gives important effect in librarian is reluctancy of librarian in managerial skills and competencies. That is why in the next paragraph we'll discuss more about skills and competencies of librarian that can be obtained from KM/KMS.

People sometimes be confused about the difference between competency and skill. Competence or competency according to Oxford Dictionary is the ability to do something successfully or efficiently ("competence | Definition of competence in English by Oxford Dictionaries," n.d.). Competence is more like have authority of something. While skill is the ability to do something well or expertise of someone, a particular ability ("skill | Definition of skill in English by Oxford Dictionaries," n.d.).

From the research there are known that librarian's reluctancy to improve their competencies and skills can affect the decline in library service performances. So what we need to do to give understanding to librarian so they voluntarily want to develop their capabilities? Using KMS is one of the ways as mentioned earlier to get the benefit as shown in table 5. By understanding and running KMS in the right way, there are several competencies and skills that librarian/libraries will be obtained. The competencies and skills that the librarian can be expected to be obtained from KM/KMS are summarized in Table 6.

There are six competencies that librarian should have and seven skills should be acquired from the use of KM/KMS. First of all, librarian must enhance their visibility about the organization so that they can provide innovative services. To perform KM/KMS effectively, librarian should be more qualified to handle it and must broaden understanding of holistic KM. That is why librarian must acquire the communication and have competency in manage a project.

Besides competencies, there are also skills that librarian mastered in. Strengthening partnership with other units in organization is a skill that librarian must have. It support the visibility of organization. Skills that support communication and project management competency are human resource and change management. While teamwork skill, presentation, leadership, and mentoring as skills that can be applied in also. And the last skill that also important is librarian must able to transform their paradigm from "service-oriented" to "value-oriented".

5. ACKNOWLEDGEMENTS

REFERENCES

Aghoghovwia, D. U. (2014). *The Role of Libraries in Knowledge Management*. *IOSR Journal Of Humanities And Social Science (IOSR-JHSS* (Vol. 19). Ver. II. Retrieved from www.iosrjournals.org

Aharony, N. (2014). Librarians' Attitudes toward Knowledge Management. *College & Research Libraries*, *72*(2), 111–126. https://doi.org/10.5860/crl-87

Ali, N. P., Khan, D., Ali, N., & Naushad Ali, P. (2015). *Perception of Knowledge Management among*

LIS Professionals: a survey of Central Universities in North India Part of the Library and Information Science Commons "Perception of Knowledge Management among LIS Professionals: a survey of Central Universities in North India" Perception of Knowledge Management among LIS Professionals: a survey of Central Universities in North India. Retrieved from http://digitalcommons.unl.edu/libphilprachttp://digitalcommons.unl.edu/libphilprac/1320

Bello, A. A. (2018). Knowledge Management in Academic Libraries: Trends, Issues and Challenges. *World Journal of Research and Review (WJRR)*, *6*(2), 20–25. Retrieved from www.wjrr.org

Benjamin, M., & McDevitt, T. (2018). The Benefits and Challenges of Working in an Academic Library: A Study of Student Library Assistant Experience. *Journal of Academic Librarianship*, *44*(2), 256–262. https://doi.org/10.1016/j.acalib.2018.01.002

Chen, H.-G. (2016). The Originals of Knowledge-Based System Development Risks (pp. 1–4). Association for Computing Machinery (ACM). https://doi.org/10.1145/2925995.2926028

Chidambaranathan, K., & Rani, S. B. S. (2015). Knowledge management and organizational culture in higher educational libraries in Qatar: An empirical study. *Library and Information Science Research*, *37*(4), 363–369. https://doi.org/10.1016/j.lisr.2015.11.002

competence | Definition of competence in English by Oxford Dictionaries. (n.d.). Retrieved April 18, 2018, from https://en.oxforddictionaries.com/definition/competence

Daland, H. (2016). Managing knowledge in academic libraries are we? Should we? *LIBER Quarterly*. Igitur, Utrecht Publishing and Archiving Services. https://doi.org/10.18352/lq.10154

Dalkir, K. (2011). *Knowledge Management in Theory and Practice* (2nd ed.). London: MIT Press.

Edwards, J. S. (2010). A Process View of Knowledge Management: It Ain't What you do, it's the way That you do it. *Electronic Journal of Knowledge Management*, *9*, 297–306. Retrieved from www.ejkm.com

Flatley, R., Weber, M. A., Czerny, S., & Pham, S. (2013). Librarians and mandatory academic advising at a mid-sized public university: A case study. *Journal of Academic Librarianship*, *39*(6), 582–587. https://doi.org/10.1016/j.acalib.2013.01.006

Garanayak, S., & Sonker, S. K. (2015). Knowledge management and librarianship in information world. In *2015 4th International Symposium on Emerging Trends and Technologies in Libraries and Information Services, ETTLIS 2015 - Proceedings* (pp. 129–132). Institute of Electrical and Electronics Engineers Inc. https://doi.org/10.1109/ETTLIS.2015.7048185

Gullbekk, E. (2015). Interdisciplinarity and information literacy: Librarians' competencies in emerging settings of higher education. In *ASIST 2015*.

Hansson, J., & Johannesson, K. (2013). Librarians' Views of Academic Library Support for Scholarly Publishing: An Every-day Perspective. *Journal of Academic Librarianship*, *39*(3), 232–240. https://doi.org/10.1016/j.acalib.2013.02.002

Huang, Y. H. (2014). Measuring Individual and Organizational Knowledge Activities in Academic Libraries with Multilevel Analysis. *Journal of Academic Librarianship*, *40*(5), 436–446. https://doi.org/10.1016/j.acalib.2014.06.010

Husain, S., Nazim, M., & Librarian, A. (2013). *Concepts of Knowledge Management among Library & Information Science Professionals. e) International Journal of Information Dissemination and Technology* (Vol. 3).

Ifla. (2016). *IFLA Guidelines for Continuing Professional Development: Principles and Best Practices 2*. Retrieved from www.ifla.org

Kitchenham, B., Pearl Brereton, O., Budgen, D., Turner, M., Bailey, J., & Linkman, S. (2009, January). Systematic literature reviews in software engineering - A systematic literature review. *Information and Software Technology*. https://doi.org/10.1016/j.infsof.2008.09.009

Koloniari, M., & Fassoulis, K. (2017). Knowledge Management Perceptions in Academic Libraries. *Journal of Academic Librarianship*, *43*(2), 135–142. https://doi.org/10.1016/j.acalib.2016.11.006

Kumari S, U., & Narasimhaiah, S. (2016). Concepts of Knowledge Management in Library & Information Services at Central Forest Library: A Case study. *Qualitative and Quantitative Methods in Libraries (QQML)*, *5*, 141–148.

MacMillan, D. (2014, September 1). Data sharing and discovery: What librarians need to know. *Journal of Academic Librarianship*. Elsevier Ltd. https://doi.org/10.1016/j.acalib.2014.06.011

Nazim, M., & Mukherjee, B. (2013). Knowledge management competencies required among library and information science professionals: An Indian perspective. *Library Review*, *62*(6–7), 375–387. https://doi.org/10.1108/LR-02-2013-0025

Nazim, M., & Mukherjee, B. (2016). *Knowledge Management in Libraries*. *Chandos Publishing*. Elsevier. https://doi.org/10.1016/b978-1-84334-747-7.09001-4

Okoli, C., & Schabram, K. (2011). *A Guide to Conducting a Systematic Literature Review of Information Systems Research*. *SSRN*. https://doi.org/10.2139/ssrn.1954824

Patil, S. S. (2013). Knowledge Management in Libraries. *Pearl : A Journal of Library and Information Science*, *7*(1), 17. https://doi.org/10.5958/j.0973-7081.7.1.003

Poonkothai, R. (2016). *Knowledge Management as an important tool in Library Management*. *International Journal of Information Technology and Library Science* (Vol. 5). Retrieved from http://www.ripublication.com

Sarungu, C. M., Titan, Murad, D. F., & Sunardi. (2018). Storing, diving and distributing of comprehensive knowledge using knowledge management in the library and knowledge center. In *Proceedings - 2017 2nd International Conferences on Information Technology, Information Systems and Electrical Engineering, ICITISEE 2017* (Vol. 2018–January, pp. 288–293). Institute of Electrical and Electronics Engineers Inc. https://doi.org/10.1109/ICITISEE.2017.8285513

skill | Definition of skill in English by Oxford Dictionaries. (n.d.). Retrieved April 18, 2018, from https://en.oxforddictionaries.com/definition/skill

Tranfield, D., Denyer, D., & Smart, P. (2003). *Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review**. *British Journal of Management* (Vol. 14).

Williams, J. D., & Rambo, N. H. (2015). An extensible and successful method of identifying collaborators for National Library of Medicine informationist projects. *Journal of the Medical Library Association : JMLA*, *103*(3), 145–147. https://doi.org/10.3163/1536-5050.103.3.008